

INCH POUND

MIL-DTL-17124E

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SUPERSEDING

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DETAIL SPECIFICATION

CORD, DETONATING

This specification is approved for use by all Departments and Agencies of the Department of Defense.

1. SCOPE

1.1 Scope. This specification covers the requirements, examinations and tests for Detonating Cord. (See 6.1).

1.2 Classification. The detonating cords covered by this specification are classified into the following types and classes as specified (see Table I).

Type I - contains PETN as major component of explosive core.

Type II - contains RDX as major component of explosive core.

Type III- contains inert powder as a major component of inert core.

2. APPLICABLE DOCUMENTS

2.1 General. The documents listed in this section are specified in sections 3 and 4 of this specification. This section does not include documents cited in other sections of this specification or recommended for additional

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use to improving this document should be addressed to: Commander, U.S. Army TACOM-ARDEC, ATTN: AMSTA-AR-EDE-S, Picatinny Arsenal, New Jersey 07806-5000 by using the Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

AMSC N/A

FSC 1375

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ATTACHMENT 014

information or as examples. While every effort has been made to ensure the completeness of this list, document users are cautioned that they must meet all specified requirements cited in sections 3 and 4 of this specification, whether or not they are listed.

2.2 Government documents.

Specifications, standards, and handbooks. The following specifications, standards, and handbooks of the exact revision listed below form a part of this specification to the extent specified herein.

SPECIFICATIONS

MILITARY

MIL-P-223	- Powder, Black.
MIL-P-387	- Pentaerythrite Tetranitrate (PETN).
MIL-DTL-398	- RDX.
MIL-C-46246	- Charge, Demolition, TNT, Block 1/4 Pound, 1/2 Pound, and 1 Pound.
MIL-A-48078	- Ammunition, Standard Quality Assurance Provisions, General Specification for.
MIL-PRF-50449	- Filler, Sheet Form (Laminated Paper for Use in Ammunition Containers).

STANDARDS

FEDERAL

FED-STD-595	- Colors
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MILITARY

MIL-STD-1916	- DOD Preferred Methods for Acceptance of Product
MIL-STD-1168	- Lot Numbering of Ammunition

2.2.1 Other Government documents, drawings and publications. The following other Government documents, drawings, and publications form a part of this specification to the extent specified herein.

DRAWINGS

ARMY

- 8796522 - Marking Diagram and Sealing, For Wood Packing Boxes.
- 9211789 - Ink, Marking Opaque for Porous Surfaces (For Automatic or Semi-automatic Machine Application).

(Copies of other Government documents, drawings and publications required by contractors in connection with specific acquisition functions should be obtained from the US Army TACOM-ARDEC, AMSTA-AR-QAW-E, Picatinny Arsenal, NJ 07806-5000.)

PUBLICATIONS

The following documents form a part of this specification to the extent specified herein. Unless otherwise indicated, the issue in effect on date of invitation for bids or request for proposal will apply.

CODE OF FEDERAL REGULATIONS

- 49 CFR 100-199 - Department of Transportation Rules and Regulations.

(The code of Federal Regulations is available from the Superintendent of Documents, US Government Printing Office, Washington, DC 20402.)

2.3 Non-Government publications. The following documents of the exact revision listed below form a part of this specification to the extent specified herein.

ASTM D4976 Standard Specification for Polyethylene Plastics

ASTM D5486-99a Standard Specification for Pressure-Sensitive Tape for Packaging, Box Closure, and Sealing

(Address application for copies to the American Society for Testing and Materials, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959.)

2.4 Order of precedence. In the event of a conflict between the text of this document and the references cited herein, the text of this document takes precedence. Nothing

in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained. (See contract provisions for additional precedence criteria.)

3. REQUIREMENTS

3.1 General. The detonating cord shall comply with requirements given in this detailed specification as well as applicable drawings, standards and referenced specifications.

3.2 Material.

3.2.1 PETN (applicable to Type I).
The PETN used in the manufacture of the detonating cord shall comply with MIL-P-387, Classes 1 to 4.

3.2.2 RDX (applicable to Type II).
The RDX used in the manufacture of detonating cord shall comply with MIL-DTL-398, Type I or II, Class 3.

3.2.3 Inert filler (applicable to Type III).
The powder used in the production of inert detonating cord shall be inert and the filler shall have a blue color.

3.2.4 Thermoplastic resin. The thermoplastic resin used for coating the cord shall comply with ASTM D4976. The plastic outer covering shall be of smooth texture and unless otherwise specified unpigmented and colorless.

3.3 Construction. The construction of the detonating cord for the specified type shall comply with Table I when tested as specified in 4.4.2.5.

3.4 Detonating velocity (applicable to Type I and Type II). The detonating velocity shall be not less than 5,900 meters per second when tested as specified in 4.5.5.

3.5 Propagation of detonation (applicable to Type I).
The detonating cord shall propagate from a main line to branch line and all branch lines shall be initiated when tested as specified in 4.5.6.

3.5.1 Detonation of TNT (applicable to Type Ib and Type Ic and Type Ij only). Detonating cord shall initiate the TNT, high order when tested as specified in 4.5.6.1.

TABLE I. Construction

Type	Class	Minimum Wt ² of Explosive Core Per 1000 Feet	Inner Construction	Finish	Diameter Inches Maximum ⁴	Maximum Wt of Finished Cord Per 1000 Feet	Breaking Strength Minimum
I	a	5 Pounds PETN	Textile	Plastic Coating	0.175±.010	14 Pounds	60 Pounds
I	b	6 Pounds PETN	Textile	Plastic Coating	0.216	19 Pounds	175 Pounds
I	c	6.4 Pounds PETN	Textile	Plastic Coating	0.200 + .005	18 Pounds	175 Pounds
I	d	7 Pounds PETN	Textile	Plastic Coating	0.200	19 Pounds	110 Pounds
I	e	7 Pounds PETN	Textile	Plastic Coating	0.235	22 Pounds	190 Pounds
I	f	12.5 Pounds PETN	Textile	Plastic Coating	0.245	26 Pounds	75 Pounds
I	g	12.5 Pounds PETN	Textile	Plastic Coating	0.270	33 Pounds	190 Pounds
I	h	14.5 Pounds PETN	Textile	Plastic Coating	0.235	29.5 Pounds	110 Pounds
I	j	6.4 Pounds PETN	Textile ³ w/Plastic Sheath	Textile ³ w/Wax	0.210	18 Pounds	150 Pounds
II	a	7 Pounds RDX ¹	Textile	Plastic Coating	0.216	19 Pounds	175 Pounds
II	b	8.5 Pounds RDX ¹	Textile	Plastic Coating	0.235	22 Pounds	190 Pounds
III	All type III detonating cord shall be loaded with an inert powder. Construction, finish diameter and breaking strength requirements shall be the same as indicated above for the Type and Class specified. The inert powder and outer finish shall be colored blue #35109 Fed. Std. 595 for identification purposes.						

TABLE I. Construction

NOTES TO TABLE I

- (1) For identification purposes, the RDX Core shall be dyed pink with one percent maximum of water soluble dye suitable for combination with the ingredient of the core.
- (2) In order to change pounds per 1000 feet to grains per foot multiply the number of pounds (per 1000 feet) by 7.
- (3) Plastic sheath and outer braided or counter-wrapped textile shall be olive drab in color with a clear wax finish.
- (4) If not otherwise indicated. (See 6.5.)

3.6 Sensitivity (applicable to Type I and Type II only).

3.6.1 Flame. The detonating cord shall not detonate when tested as specified in 4.5.7.1.

3.6.2 Impact. The detonating cord shall not detonate through the ends of the sample when tested as specified in 4.5.7.2.

3.7 Waterproofness (applicable to Type I and Type II only).

The detonating cord shall withstand immersion in water for not less than 72 hours and function satisfactorily when tested as specified in 4.5.8.

3.8 Sealing ends (applicable to Type I and II only).

The ends of each length of cord shall be sealed with tape conforming to ASTM D5486, to prevent spilling of the explosive. The tape shall be approximately 2 inches wide, Type IV, Colored: Olive Drab Semigloss Color 24084. The tape shall be placed so that the cord is approximately at the mid point of the tape width. The two sides of the tape shall then be pressed together so as to create a seal at the cord end. No explosive shall spill out of the cord. The cord shall be wrapped around the cord spool, with the first end of the cord inside the barrel. The last end shall be taped down to the outside and sealed. The inspection to determine conformance with the requirement shall be as specified in 4.5.9.

3.9 Flexibility. The plastic coating shall not crack when tested as specified in 4.5.10.

3.10 Temperature conditioning. The following applies to First Article Inspection only for Types I and II.

3.10.1 Conditioning at 130°F and 360 BTU/Sq. ft./hr. solar radiation. When tested as specified in 4.5.11.1 the detonating cord shall show no change in physical characteristics such as form and color or diameter as given in Table 1.

3.10.2 Conditioning at -65°F. When tested as specified in 4.5.11.2 the detonating cord shall show no change in physical characteristics such as form and color and comply with diameter and breaking strength as given in Table I when tested in accordance with applicable test methods. In addition, the conditioned sample shall comply with 3.4 (Detonating velocity) when tested as specified in 4.5.5.

3.11 First article inspection. This specification contains technical provisions for first article inspection. Requirements for the submission of first article samples by the contractor shall be as specified in the contract.

3.12 Workmanship. The manufacturer shall implement procedures and controls to assure that the process and the product produced are not compromised by foreign material or any other conditions which may degrade the material.

4. VERIFICATION

4.1 General provisions. Unless otherwise specified herein or in the contract, the provisions of MIL-A-48078 shall apply and are hereby made a part of this detailed specification.

4.2 Classification of inspections. The following types of inspection shall be conducted on this item:

- a. First article inspection (see 4.3).
- b. Quality conformance inspection (see 4.4).

4.3 First article inspection.

4.3.1 Submission. The contractor shall submit a first article sample as designated by the Contracting Officer for evaluation in accordance with provisions of 4.3.2. The first article sample shall be five (5) complete spools. The sample

shall be obtained from the first production lot which has been produced by the contractor using the same production processes, procedures and equipment as will be used in fulfilling the contract. All materials shall be obtained from the same sources of supply as will be used in regular production.

4.3.2 Inspection to be performed. The sample will be subjected by the Government to any or all of the examinations or tests specified in this specification (see MIL-A-48078 and Table II).

4.3.3 Rejection. See MIL-A-48078.

4.4 Quality conformance inspection.

4.4.1 Lot formation. A lot shall consist of one or more batches of detonating cord produced by one manufacturer, in accordance with the same specification, or same specification revision, under one continuous set of operating conditions. Each lot shall consist of that quantity of detonating cord that has been subjected to the same unit chemical or physical process intended to make the final product homogeneous. The lot shall comply with the provisions for submission of product as specified in MIL-STD-1916. The criteria and procedure for the assignment of lot numbers shall be in accordance with MIL-STD-1168. Also, MIL-A-48078 applies.

4.4.2 Examination. Unless otherwise specified, sampling inspection for quality conformance characteristics listed in the classification of characteristic paragraphs shall be conducted in accordance with MIL-STD-1916 using the attributes sampling plans in MIL-STD-1916 and the verification levels as specified in the classification of characteristics paragraphs. (See MIL-STD-1916 for definitions of critical, major and minor characteristics.)

Table II **First Article Inspection**

Examination/test	Conformance criteria	Requirement paragraph	Inspection method ref.
Construction			
Weight of finished cord	4.3	3.3	4.5.1
Diameter	4.3	3.3	4.5.2
Breaking strength	4.3	3.3	4.5.3
Weight of explosive	4.3	3.3	4.5.4
Detonating velocity	4.3	3.4	4.5.5
Propagation (as applicable)	4.3	3.5	4.5.6
Sensitivity			
Flame	4.3	3.6.1	4.5.7.1
Impact	4.3	3.6.2	4.5.7.2
Waterproof ness	4.3	3.7	4.5.8
Sealing end	4.3	3.8	4.5.9
Flexibility	4.3	3.9	4.5.10
Temperature conditioning	4.3	3.10	4.5.11
Workmanship	4.3	3.11	Visual

4.4.2.1 Classification of characteristics – Detonating Cord Spool

Classification	Examination/test	Conformance criteria	Requirement paragraph	Inspection method ref.
<u>Critical :</u>	None defined			
<u>Major:</u>	None defined			
<u>Minor:</u>				
201	Cord spliced excessively	Level II	5.2	Visual
202	Foreign matter	Level II	3.12	Visual
203	Ends of cord not sealed	Level II	3.8	Visual
204	Ends of cord not taped down onto spool	Level II	3.8	Visual
205	Marking misleading or unidentifiable	Level II	5.5	Visual

4.4.2.2 Classification of characteristics - Box, Paper or Fiber, Sealed

Classification	Examination/test	Conformance criteria	Requirement paragraph	Inspection method ref.
<u>Critical:</u>	None defined			
<u>Major :</u>	None defined			
<u>Minor:</u>				
201	Sealing strip torn, badly wrinkled or otherwise fails to seal box completely	Level II	5.3	Visual
202	Box torn, cut or punctured	Level II	5.3	Visual
203	Contents loose	Level II	5.4	Visual
204	Marking missing, misleading or unidentifiable	Level II	5.5	Visual
205	Barrier bag missing	Level II	5.3.1	Visual

4.4.2.3 Classification of characteristics - Sealed Wooden Packing Box

Classification	Examination/test	Conformance criteria	Requirement paragraph	Inspection method ref.
<u>Critical :</u>	None defined			
<u>Major:</u>				
101	Box damaged to the extent that contents are exposed	Level IV	5.4	Visual
102	Strapping missing, broken or loose	Level IV	5.4	Visual
<u>Minor</u>				
201	Contents loose	Level II	5.4	Manual
202	Markings missing, misleading or unidentifiable	Level II	5.5	Visual

4.4.2.4 Classification of characteristics - Metal drums, sealed
(For Navy, if packaged in drums.)

Classification	Examination/test	Conformance criteria	Requirement paragraph	Inspection method ref.
<u>Critical</u>	None defined			
<u>Major</u>				
101	Cover not sealed	Level IV	5.4.3	Visual
<u>Minor</u>				
201	Contents loose	Level II	5.4.3	Manual
202	Gaskets missing, broken or improperly placed	Level II	5.4.3	Visual
203	Container punctured, dented or cracked	Level II	5.4.3	Visual
204	Seams cracked or split	Level II	5.4.3	Visual
205	Locking device bent or cracked	Level II	5.4.3	Visual
206	Marking misleading or unidentifiable	Level II	5.5.2	Visual

4.4.2.5 Detonating Cord Construction

Classification	Examination/test	Conformance criteria	Requirement paragraph	Inspection method ref.
<u>Critical :</u>	None defined			
<u>Major :</u>				
101	Weight of finished cord	4.4.3.1.1	3.3	4.5.1
102	Diameter	4.4.3.1.1	3.3	4.5.2
103	Breaking strength	4.4.3.1.1	3.3	4.5.3
104	Weight of explosive	4.4.3.1.1	3.3	4.5.4
105	Waterproofness	1 sample	3.7	4.5.8
106	Color	4.4.3.1.1	Table 1	Visual
107	(Applicable to Type III) Flexibility	4.4.3.1.6	3.9	4.5.10
<u>Minor</u>				
201	Inner construction	4.4.3.1.1	3.3	Visual
202	Finish	4.4.3.1.1	3.3	Visual
203	Workmanship	Level II	3.12	Visual

4.4.3 Testing. PRECAUTION: This specification covers sampling and testing of toxic and hazardous materials. Accordingly, it is emphasized that all applicable safety rules, regulations and procedures must be followed in handling and processing the detonating cord.

4.4.3.1 Sampling. Five (5) spools shall be randomly selected from the lot and shall be subjected to the following tests:

4.4.3.1.1 Compliance with Table I. From each of these five spools, approximately 18 inches of detonating cord shall be selected and tested. If any sample fails to comply with the requirements given in Table I the lot shall be rejected.

4.4.3.1.2 Detonation velocity. Approximately 6 feet of detonating cord shall be selected from each of the five spools and tested. If any sample fails to meet the requirements given in 3.4 the lot shall be rejected.

4.4.3.1.3 Propagation of detonation. Approximately 3 feet of detonating cord from each of the five spools, plus an additional 20 feet section from any one of the 5 spools for use as a main line, shall be selected and tested. If any sample fails to comply with the requirement given in 3.5, the lot shall be rejected.

4.4.3.1.4 Sensitivity.

4.4.3.1.4.1 Flame. Approximately 6 inches of detonating cord shall be selected from each of the five spools and tested. If any sample fails to comply with the requirement given in 3.6.1 the lot shall be rejected.

4.4.3.1.4.2 Impact. Approximately 6 inches of detonating cord shall be selected from each of the spools and tested. If the sample fails to comply with the requirement given in 3.6.2, the lot shall be rejected.

4.4.3.1.5 Waterproofness. Only one continuous piece 80 feet long shall be selected (if the lot is comprised of 50 foot spools, two 50 foot spools shall be selected) for this test. If the sample fails to comply with the requirement given in 3.7, the lot shall be rejected.

4.4.3.1.6 Flexibility. Approximately 2 feet of detonating cord shall be selected from each of the five

spools and tested. For Type Ic approximately 10 feet of detonating cord shall be selected from each of the five spools. If any sample fails to comply with the requirement given in 3.9, the lot shall be rejected.

4.4.3.1.7 Temperature conditioning. A 10 foot sample from each spool shall be selected for this test. If any sample fails to comply with the requirements given in 3.10, the first article shall be rejected.

4.4.4 Inspection equipment. For inspection equipment required to perform the examinations and tests prescribed herein, the contractor shall submit for approval inspection equipment designs in accordance with the terms of the contract. See Section 6 of MIL-A-48078 and 6.3 herein.

4.5 Test methods and procedures (see 6.4).

4.5.1 Weight of finished cord. Determine the weight of the finished cord as follows: Accurately measure the total length of the five segments selected and record as feet (F). Also, obtain a Total Weight of the five segments and record as grams (w). Calculate the weight of finished cord as follows:

$$\text{Weight of finished cord, lbs} = \frac{W}{F \times 454} 1000$$

4.5.2 Diameter. Determine the diameter of each sample with a suitable gauge which has prior approval of the Technical Agency (see 6.3). (The requirement does not apply to the waterproofed ends of the detonating cord).

4.5.3 Breaking strength. Determine the breaking strength (see Table I) of each sample of the finished cord in accordance with a procedure which has prior approval of the Technical Agency (see 6.3).

4.5.4 Weight of explosive. Determine the weight of explosive as follows: After all the tests have been completed to determine conformance with Table I, cut each of the five (5) selected samples to exactly 12.0 ± 0.05 inches. Obtain an accurate total weight (W_T) for these five 12 inch segments. Cut open each of the twelve inch segments and quantitatively remove the explosive without losing any of the construction material and reweigh (W_A). Calculate the weight of explosive per 1000 feet as follows:

Weight of explosive per 1000 feet, lbs = $\frac{W_T - W_A}{5 \times 454} \times 1000$

4.5.5 Detonating velocity.

4.5.5.1 Type I. A number 6 commercial blasting cap shall be attached in parallel, and in close contact with the piece of dry detonating cord by means of adhesive tape, and detonated. The detonating velocity shall be measured by a procedure which has been submitted to the Technical Agency for prior approval (see 6.3).

4.5.5.2 Type II. A number 6 commercial blasting cap shall be securely attached to a square cut dry end of the cord using a butt joint. The end of the blasting cap shall be placed in immediate contact with the explosive core, then detonated. The detonating velocity shall be measured by a procedure which has been submitted to the Technical Agency for prior approval (see 6.3).

4.5.6 Propagation of detonation (applicable to Type I). The samples shall be attached by a girth hitch to the main line and tested in accordance with a procedure submitted to the Technical Agency for prior approval (see 6.3).

4.5.6.1 Detonation of TNT (applicable to Type Ib, Ic and Ij). In conformance with Specification MIL-C-46246, the cord shall be snugly tied around a TNT demolition block, with three turns plus a half hitch on the end leading to the blasting cap. The other end should be securely tucked beneath all the turns. The procedure used to determine initiation of the TNT, high order, shall be submitted to the Technical Agency for prior approval (see 6.3).

4.5.7 Sensitivity.

4.5.7.1 Flame. Four ounces of black powder complying with MIL-P-223, Class 5, shall be spread around and over (including the open ends) each piece of detonating cord and ignited. The procedure used to determine non-detonation shall be submitted to the Technical Agency for prior approval (see 6.3) to determine compliance with 3.6.1.

4.5.7.2 Impact. Each piece of detonating cord shall be placed on a steel anvil and a 25 pound bar with a diameter of 2 inches at the striking face shall be dropped from a height of 16 feet onto each piece (see 6.3). Procedures used to determine non-detonation shall be submitted to the

technical agency for prior approval (see 6.3) to determine compliance with 3.6.2.

4.5.8 Waterproofness. The sample, except for one end approximately five feet long which shall be kept dry, shall be immersed in water not more than one foot in depth for not less than 72 hours. After immersions, the sample shall be cut into a fifty foot length (including the dry end) for use as trunk line and ten three foot sections for branch lines. Beginning fifteen feet from the dry end of the trunk line, the branch lines shall be attached at three foot intervals by means of girth hitch knots. The cord shall then be tested in accordance with a procedure which has prior approval of the Technical Agency, to determine compliance with 3.7 (see 6.3).

4.5.9 Sealing ends. A method which has prior approval of the Technical Agency (see 6.3) shall be used to determine conformance with the applicable requirement.

4.5.10 Flexibility. Condition the samples in a suitable chamber maintained at $-65 \pm 2^{\circ}\text{F}$ for a minimum of 72 hours (refer to 4.4.3.1.6). Remove only one sample and allow the other samples to remain at -65°F . Wrap a portion of the sample, securely, around a 1/4 inch diameter mandrel, a minimum of five times around and visually inspect for cracks. (A 3/4 inch diameter mandrel shall be used for detonating cords with an OD greater than 0.25 inches.) Then repeat the test on the additional samples. In addition, the type 1c detonating cord shall be tied in any of two hitches and connections normally encountered in blasting and demolition operations (see 6.7) and visually inspected for cracks. There shall be no delays from time sample is removed from the -65°F chamber until the wrapping operation is performed.

4.5.11 Temperature conditioning.

4.5.11.1 Conditioning at $130 \pm 5^{\circ}\text{F}$ and 360 BTU/sq. ft./hr. solar radiation (see 6.6). A 15 foot long detonating cord test sample shall be coiled in a single circle approximately 4 feet in diameter, and placed in a horizontal plane on a perforated stainless steel tray. The cord shall be exposed to $130 \pm 5^{\circ}\text{F}$ with 360 BTU/sq ft/hr solar simulation radiation for 4 hours minimum in the test chamber. The intensity of solar radiation shall be monitored once/hr during the 4 hours exposure period. Upon completion of the solar radiation test, the chamber temperature shall be restored to laboratory ambient level; the test sample

shall be removed and visually inspected to determine that the cord was not broken, deformed or changed in color. For this visual examination a section of unconditioned detonating cord should be used as a reference standard.

4.5.11.2 Conditioning at -65°F. Using the sample from 4.5.11.1, wind the cord in a loose elliptical coil, approximately one foot by two feet and place in a perforated stainless steel basket. Place the basket containing the sample into a -65°F conditioning chamber and condition at $-65 \pm 2^\circ\text{F}$ for 72 hours minimum. After the 72 hours, gradually elevate the temperature to laboratory ambient conditions and then remove the sample from the chamber. Again visually inspect the sample against the reference sample for form and color. Check the diameter in accordance with 4.5.2, check the breaking strength in accordance with 4.5.3. Finally perform the detonation test as specified in 4.5.5.

5. PACKAGING

5.1 Packaging. For acquisition purposes, the packaging requirements shall be as specified in the contract or order (see 6.2 and 6.8). When actual packaging of materiel is to be performed by DOD personnel, these personnel need to contact the responsible packaging activity to ascertain requisite packaging requirements. Packaging requirements are maintained by the Inventory Control Point's packaging activity within the Military Department or Defense Agency, or within the Military Department's System Command. Packaging data retrieval is available from the managing Military Department's or Defense Agency's automated packaging files, CD-ROM products, or by contacting the responsible packaging activity.

6. NOTES

6.1 Intended use. The detonating cord covered by this specification is intended for military applications and includes: blasting, demolition, cutting charges, initiating devices and explosive initiating grains.

6.2 Acquisition requirements. Acquisition documents must specify the following:

(See MIL-I-45208. For Type III, the material used for the inert filler should be specified in the contract or purchase order.)

- a. Title, number and date of this specification.
- b. Packaging requirements. (See 5.1).
- c. Requirements for First Article. (See 4.1).
- d. Government Furnished Material or equipment.
- e. Requirements for acceptance inspection equipment (AIE) designs (See 6.3).
- f. Requirements for ammunition lot numbering, and data card preparation should be in accordance with MIL-STD-1168
- g. Applicable national stock number.
- h. Certificate of conformance for each lot or shipment of product.
- i. Requirements for conformance. (See 4.0).
- j. Applicability of Live Fire T&E requirements under Public Law 1033-355, Section 2366 of Title 10, USC.

6.3 Inspection equipment/test procedures.

6.3.1 Submission of inspection equipment designs for approval (see MIL-A-48078). Submit equipment designs as required to Commander, TACOM-ARDEC, ATTN: AMSTA-AR-QAT-P, Picatinny Arsenal, NJ 07806-5000.

6.3.2 Submission of test procedures for approval.
Same as 6.3.1.

6.4 Equivalent test methods. The test methods given in this specification are the official methods to be used. The contractor may request using other methods providing that the proposed method is equivalent (accuracy and precision) to the method given in this specification. Prior approval of the Contracting Officer is required for use of equivalent test methods. A description of the proposed method should be submitted through the Contracting Officer to: Commander, TACOM-ARDEC, ATTN: AMSTA-AR-QAT-P, Picatinny Arsenal, NJ 07806. This description should include, but not be limited to, the procedures used, the accuracy and precision of the method, test data to demonstrate the accuracy and precision and drawings of any special equipment required (see MIL-I-45208).

6.5 International standardization. Certain provisions of this specification (Table I, para. 3.4, 3.7 and 3.9) are the subject of international standardization agreement STANAG 2818 . When amendment, revision, or cancellation of this specification is proposed which will modify the international agreement concerned, the preparing activity will take appropriate action through international standardization channels including departmental

standardization offices to change the agreement or make other appropriate accommodations.

6.5.1 Cord diameter. Deletion of a minimum diameter from Type I, Class j has not been an oversight. For cord manufactured for use by nations affected by the above international agreement, the diameter of the cord should be as follows, in accordance with this agreement:

Maximum: 0.2165 inch (5.50mm)

Minimum: 0.1950 inch (4.95mm)

6.6 Solar radiation. The following have been found satisfactory for use in monitoring the intensity of solar radiation:

a. Pyroheliometer, Eppley Laboratory, Inc., Model 10, S/N 27370, Horizontal Surfact Type or equal.

b. Portable Potentiometer, Leeds & Northrop, FA #Q3550, S/N 1026920 or equal.

6.7 Hitches and connections. Hitches and connections are described in Chapter 13 of DuPont Blasters Handbook, Fifteenth Edition and in ISEE Blasters Handbook, Seventeenth Edition.

6.8 Acceptable packaging requirements. The following packaging and marking requirements have been used for packaging detonating cords, and is found to be acceptable to the Government. These requirements should be included in the contract or order for the procurement of detonating cords because detonating cords contain hazardous energetic material(s). (Caution: If the following paragraphs are to be included in a contract, they must be modified, using standard contract language, to make them compulsory requirements.)

6.8.1 Spools.

6.8.1.1 Fifty-foot lengths. The 50 foot length of detonating cord should be furnished on a fiberboard or chipboard core, 8 plus or minus 1/4 inch in length, 5/8 inside diameter, 1 plus or minus 1/16 inch outside diameter and 1.30 plus or minus 0.05 ounces in weight. The detonating cord should be wound on the core in three coils. The cord should not extend beyond the ends of the core more than 3/16 inch, and the maximum diameter of the completed reel should not exceed 2 1/2 inches.

6.8.1.2 Lengths. The 100 foot lengths should be furnished on commercial spools. The 500, 1000 and 4000 foot lengths should be furnished on commercial spools.

6.8.2 Splicing all types. Two splices maximum should be permitted per 1000 feet. One splice maximum should be permitted per 500 feet. No splice should be permitted for 100 or 50 feet.

6.8.3 Packaging.

6.8.3.1 Level A. Each spool of detonating cord should be placed in a fiberboard box conforming to ASTM 5118 for a Type CF, Class Domestic, Variety SW, Grade 200 minimum box. Boxes should be closed by applying ASTM D5749 Type II, Grade B tape, 2 inches wide over the full length of the center top and bottom box seam with an approximate 3 inch extension onto the end panels of the box. All corners of each box should be blunted and each box inserted into a barrier bag conforming to MIL-B-117 for a Type I or II, Class E, Style 1 or 2. All excess air should be exhausted from the bag and the opening closed by heat sealing. The bag should meet the heat seal test of MIL-STD-2073-1D (Standard Practice for Military Packaging).

6.8.3.2 Level B. Spools of detonating cord should be packaged in the same manner as described in 6.8.3.1.

6.8.3.3 Level C. Spools of detonating cord should be packaged in the same manner as described in 6.8.3.1 except the barrier bag is not required.

6.8.4 Packing.

6.8.4.1 Level A (for Army use). Detonating cord packaged in accordance with 6.8.3.1 should be packed in wood boxes conforming to MIL-B-2427, (Boxes, Ammunition Packing, Wood Nailed), Type I, Class 1 box. All interior surfaces of the box should be lined with fillers, sheet form conforming with MIL-PRF-50449 (Filler, Sheet Form - Laminated Paper for Use in Ammunition Containers). Additional fillers should be placed on top of the box contents as required for a tight pack. The number of rolls per box should be:

1000 ft. rolls - 3 per box	
500 ft. rolls - 6 per box	
100 ft. rolls and 50 ft. rolls - as specified in	
	contract or purchase
	order.
4000 ft. rolls - 1 per box	

Boxes should be closed and strapped in accordance with instructions contained in the appendix of the box specification.

6.8.4.2 Level B. Level B packing should be the same as described in 6.8.4.1.

6.8.4.3 Level C. Detonating Cord Type I and II packaged in accordance with 6.8.3.2 should be packed in accordance with Code of Federal Regulations, Title 49, CFR except if a fiberboard box is used it should conform to Grades V3C or V13V of ASTM D5118 (Standard Practice for Fabrication of Fiber Board Shipping Boxes), Type III, (Inert) cord should be packaged as specified in ASTM D3951 (Standard Practice for Commercial Packaging)

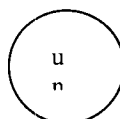
6.8.5 Marking.

6.8.5.1 Marking for Army use. Each spool, unit box and bag should be labeled, stamped, or printed in accordance to marking requirements of Drawing 12982865. The word "SER" should be included only if the serial number is assigned. The parenthesis should not be included in the marking.

(NSN) (DODIC)
(No.Ft)Cord, Detonating
Type() C1()
LOT() SER()

Letters should be upper case. Letter and number size min. 1/4 inch. Labels should be white gummed stock. Stamping ink should be black conforming to specification A-A-208 or drawing 9211789. Labels should be coated on exterior with waterproof adhesive conforming to A-A-3006 on Level A shipments. Exterior boxes containing Type I or II detonating cord should be marked in accordance with drawing 8796522. The DOT marking for Detonating cord when the gross weight of the package 100 lbs or less and not exceeding 100 grains/linear foot should be "Cord, Detonating UN 0065".

Mark UN "POP" marking on opposite side of the box as the descriptive nomenclature as follows:


 4C1/Y*/S/**
USA/DOD/AYD

The letter "u" and "n" should be lower case and enclosed in a circle. At * enter the maximum gross weight in kilograms of the box configuration that was POP tested or will be used

for an acceptable analogy IAW 49CFR. The weight of the packed out box must be equal to or less than the POP certified box weight IAW 49CFR. At ** enter the last two digits of the year packed or the year the package is later reconditioned.

Exterior boxes containing Type III (inert) cord should be marked in accordance with Dwg. 8796522 and Drawing 12982865.

6.8.5.2 Marking for Navy Use. Each 500 ft spool specified in 6.8.1.2 should be labeled, stamped, or printed in accordance with Drawing 12982865. Mark metal drum in accordance with Drawing 8806652 and Drawing 12982865.

6.9 Subject term (key word) listing.

Explosive devices
Demolition materials
Explosive initiation

6.10 Changes from previous issue. Asterisks are not used in this revision to identify changes with respect to the previous issue, due to the extensiveness of the changes.

Custodian:
Army - AR
Navy-OS

Preparing activity:
Army - AR

(Project 1375-0095)

Reviewing activity:
Navy - MC